Heat Exchanger Replacement in a 30 or 60 kW EV Quick Charger

Introduction

The Heat Exchangers in the 30kW and 60kW EV Quick Chargers are mounted on both sides of these chargers and are bolted and wired to charger inside the chargers' walls.

To maintain the charger's listing, you must purchase replacement parts for this charger from Pii only and installers must be qualified and trained electricians who install the parts according to these instructions.

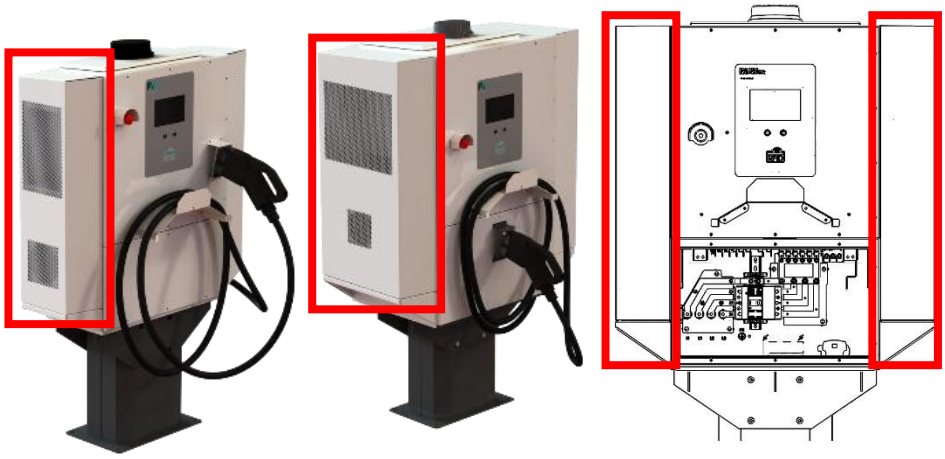


Figure 1: Heat Exchangers (HX) in the 30 kW and 60 kW EV Quick Chargers are mounted as left and right side packs

CAUTION! Replacement parts used must be purchased from Power Innovations International to maintain the charger's listing.

Replacement Heat Exchanger Part Number

Note: The 30 kW and 60 kW EV quick charger models have 2 identical heat exchangers (HXs). If you are replacing both HXs in one model, be sure to order 2 parts. They are designed to be installed on either side. So they are interchangeable per model.

Supported Pii Charger Models	Heat Exchanger Part #	Description
EVQC030 EV Quick Charger	**Standard: ES00058** **BABA: EEC00038**	HX for 30 kW EV Quick Charger
EVQC060 EV Quick Charger	**Standard: ES00055** **BABA:** Contact Pii	HX for 60 kW EV Quick Charger

Tools Needed

- T25 Torx driver
- 6 mm hex driver and extension
- M8 socket driver and extension
- Flathead screwdriver, no more than 5 mm wide
- Phillips screwdriver, 1 gauge
- Drill and Hex-head socket set for M6 hex-head bolts

IMPORTANT SAFETY INSTRUCTIONS – SAVE THESE INSTRUCTIONS

ELECTRICAL WARNINGS – WARNING! RISK OF ELECTRIC SHOCK!

WARNING! RISK OF ELECTRIC SHOCK! ONLY QUALIFIED ELECTRICAL PERSONNEL FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THIS TYPE OF EQUIPMENT AND THE HAZARDS INVOLVED SHOULD ADJUST, MODIFY, AND SERVICE THIS EQUIPMENT, WHICH IS REQUIRED TO MAINTAIN THE CHARGER'S INTERTEK LISTING. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE INJURY OR DEATH.

WARNING! RISK OF ELECTRIC SHOCK! SHUT OFF POWER SUPPLY BEFORE BEGINNING INSTALLATION ACTIVITIES OR MAINTENANCE WORK. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE INJURY OR DEATH.

WARNING! RISK OF ELECTRIC SHOCK! THIS EV QUICK CHARGER CONTAINS HIGH VOLTAGE POWER THAT IS POTENTIALLY DANGEROUS IF NOT HANDLED PROPERLY.

CAUTION! The installer is responsible for conforming to all local and national electrical codes and standards applicable in the jurisdiction this equipment is installed in, including providing suitable wire sizes per NEC for the input configuration.

Notice: Before Beginning Replacement

Note:

1. **Wire/cable count and placement vary, by model number**. Not all connections are specified here, so take note of positioning and be methodical when disassembling. Clear, lighted photographs, from varied angles, and labeling with tape and or Sharpie is recommended.
2. **Take care to keep track of fasteners**. If any fasteners are lost, they must be replaced--or else damage or liability may result.
3. **Avoid cross-threading.** Thread nuts and screws first by hand, then with power tools (if desired), to avoid cross-threading. This may seem minor, but it can have major ramifications if not observed.
4. **Recommissioning the unit is not necessary**, as that process will have been completed in the factory.

Replace Heat Exchanger in a 30 kW or 60 kW EV Quick Charger

1. Turn Off EV Quick Charger's AC Main Switch.

a. Remove the lower-front panel on the 30 kW or 60 kW charger using a T25 Torx driver.

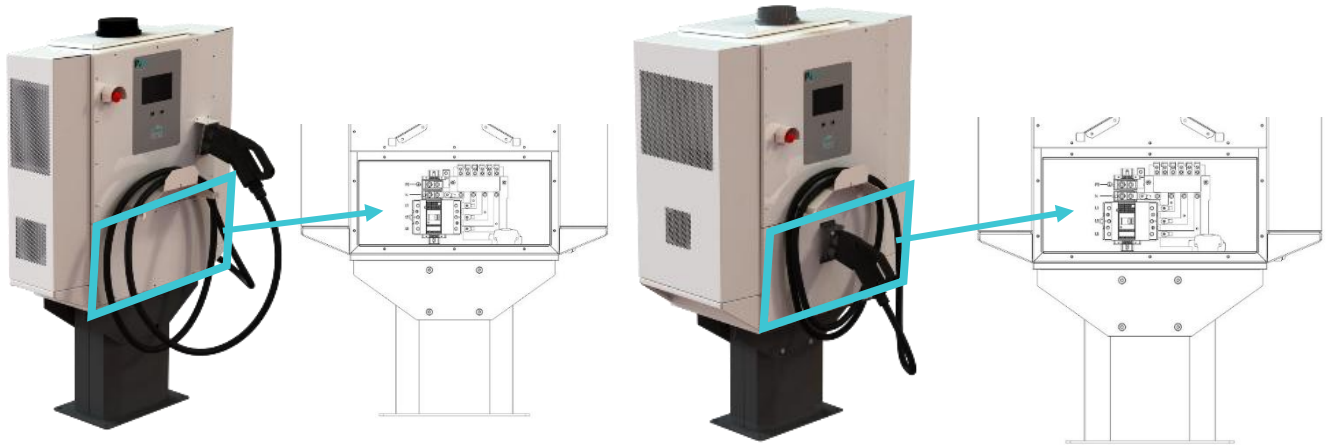
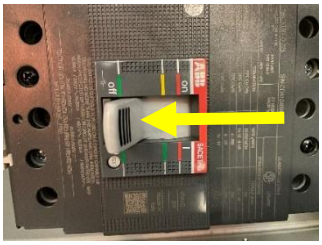


Figure 2: EV quick chargers' lower- front panel (30kW and 60 kW chargers)

b. Turn OFF chargers AC main switch inside the 30 kW or 60 kW charger.

Figure 3: 30 or 60 kW charger's AC Main Switch inside charger in OFF position



OFF

2. Be mindful that charger's AC input wires are still live.

WARNING! RISK OF ELECTRIC SHOCK! THIS EV QUICK CHARGER CONTAINS HIGH VOLTAGE POWER THAT IS POTENTIALLY DANGEROUS IF NOT HANDLED PROPERLY.

The **input** wires inside the open lower-front panel coming up from the bottom remain **live**—Do not touch!

The remainder of the system is without power and can be handled safely.

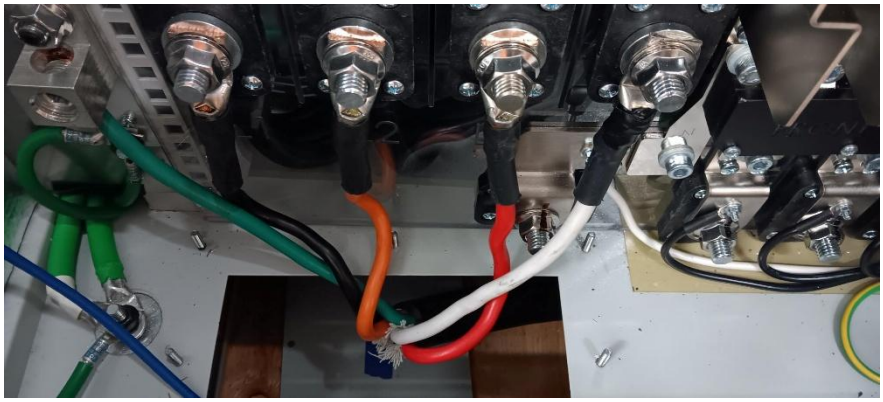


Figure 4 – WARNING! Don't touch Input wires inside right-side door if they are live live

3. Disconnect Heat Exchanger (HX) wires (Figures 5-6).

a. At the top of the opened lower-front panel (Figure 5), locate the wires connected to the **+48V** connector.

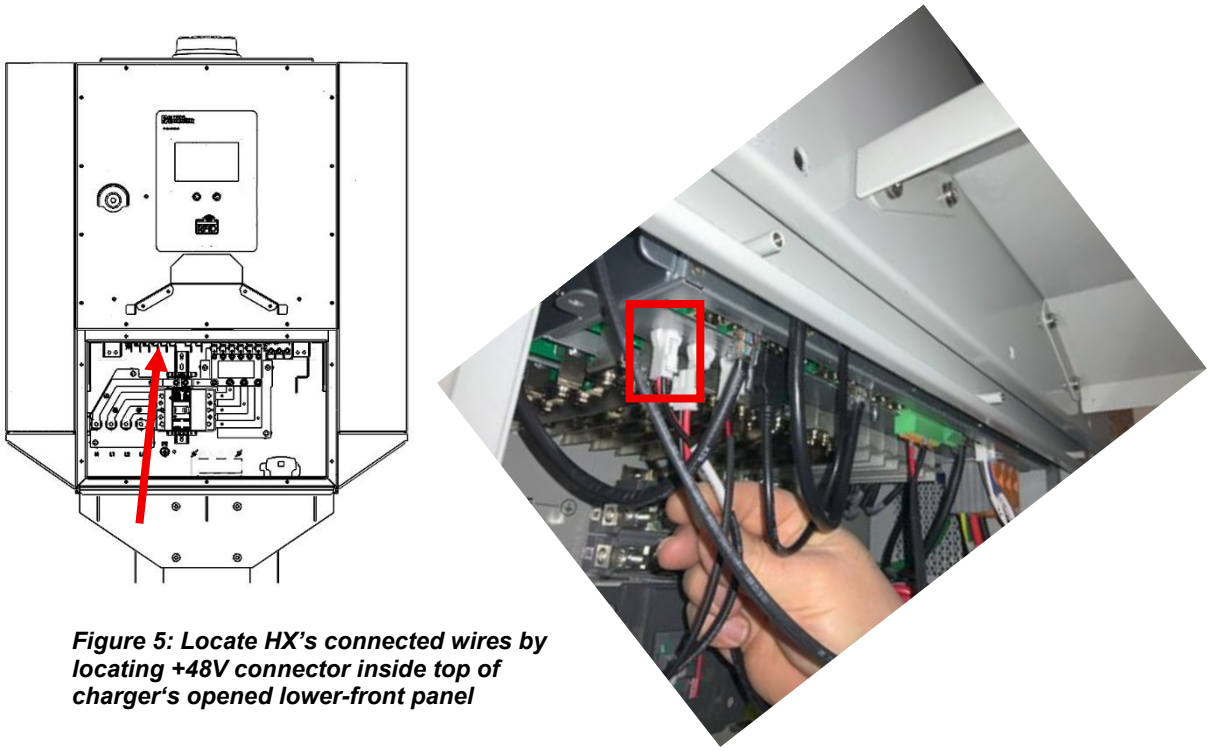


Figure 5: Locate HX's connected wires by locating +48V connector inside top of charger's opened lower-front panel

b. Disconnect the installed HX wires locked into the **+48V** connector: Depress the connector's lever and pull it downward.

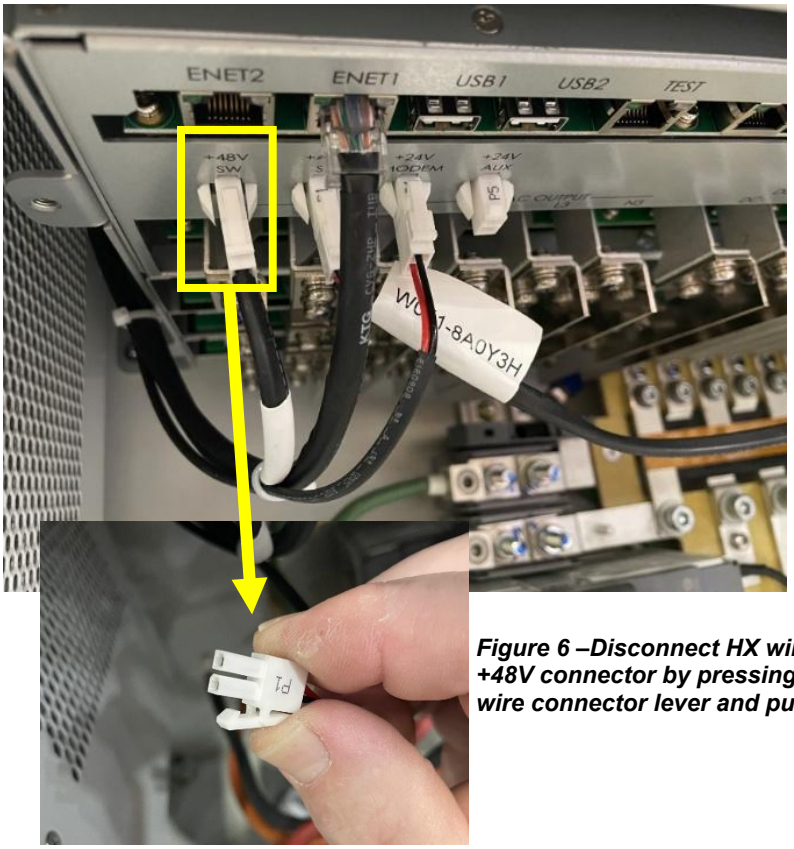


Figure 6 –Disconnect HX wires from +48V connector by pressing its white wire connector lever and pulling down

4. **Remove left-side or right-side Heat Exchanger (HX).**
    a. Remove bottom socket cap screws (2 on each Heat Exchanger) with a 6 mm hex driver and extension (Figure 7).

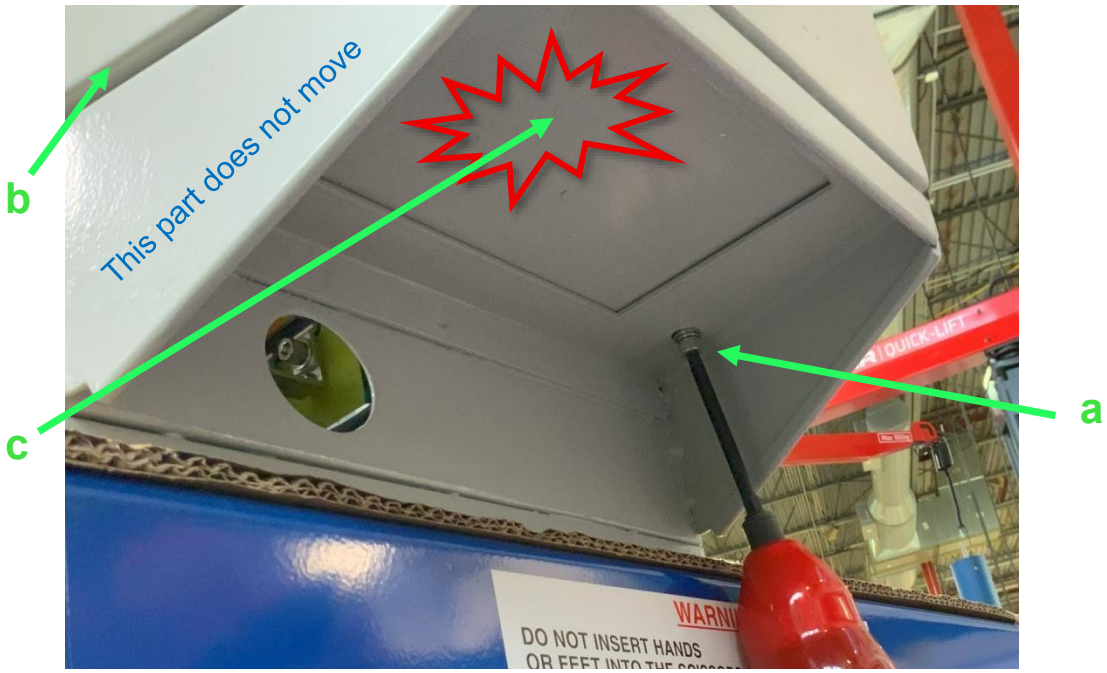


Figure 7 – Removing HX from charger

    b. Lift heat exchanger (HX) cover vertically to remove.
    c. You may be required to strike this surface with rubber mallet.
    d. Set cover(s) aside.

e. Use an M8 socket to remove the 20 fasteners from each heat exchanger (HX), (20 from left-side HX and 20 from right-side HX. This will also require an extension on your drill (Figure 8).

Figure 8 – Removing 20 fasteners

f. Remove the heat exchanger(s), carefully guiding attached wires out through the opening (Figure 9).

Figure 9 – Removing heat exchanger

5. Install New Heat Exchanger (HX) and wires.

a. Remove new HX from packaging.

b. Remove green connector from front of HX with a flathead precision driver.

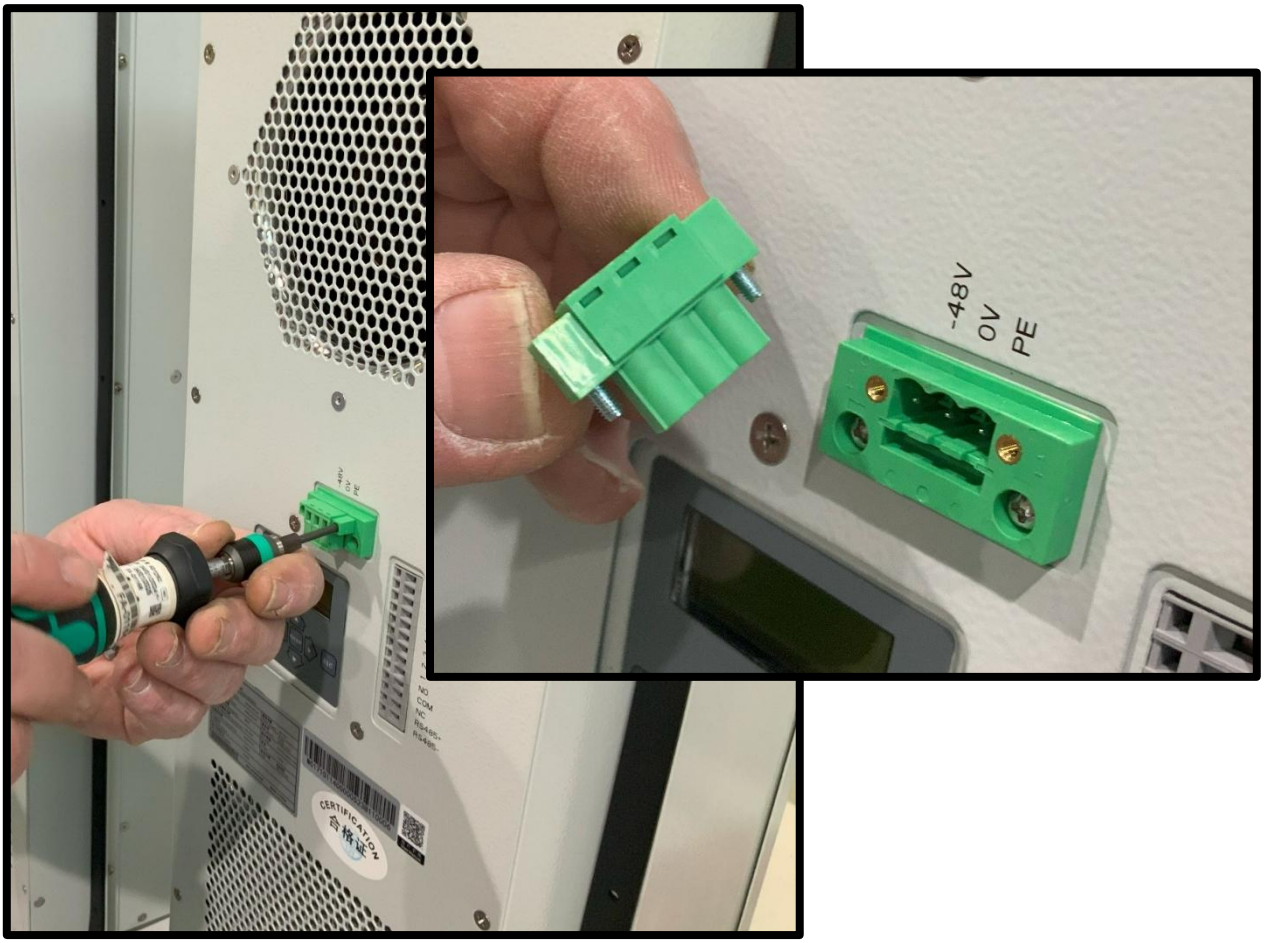


Figure 10 – Removing green connector

c. From the enclosed cabling, trim approximately 3mm of the wire ferrules, so that they may be inserted into green connector without showing.

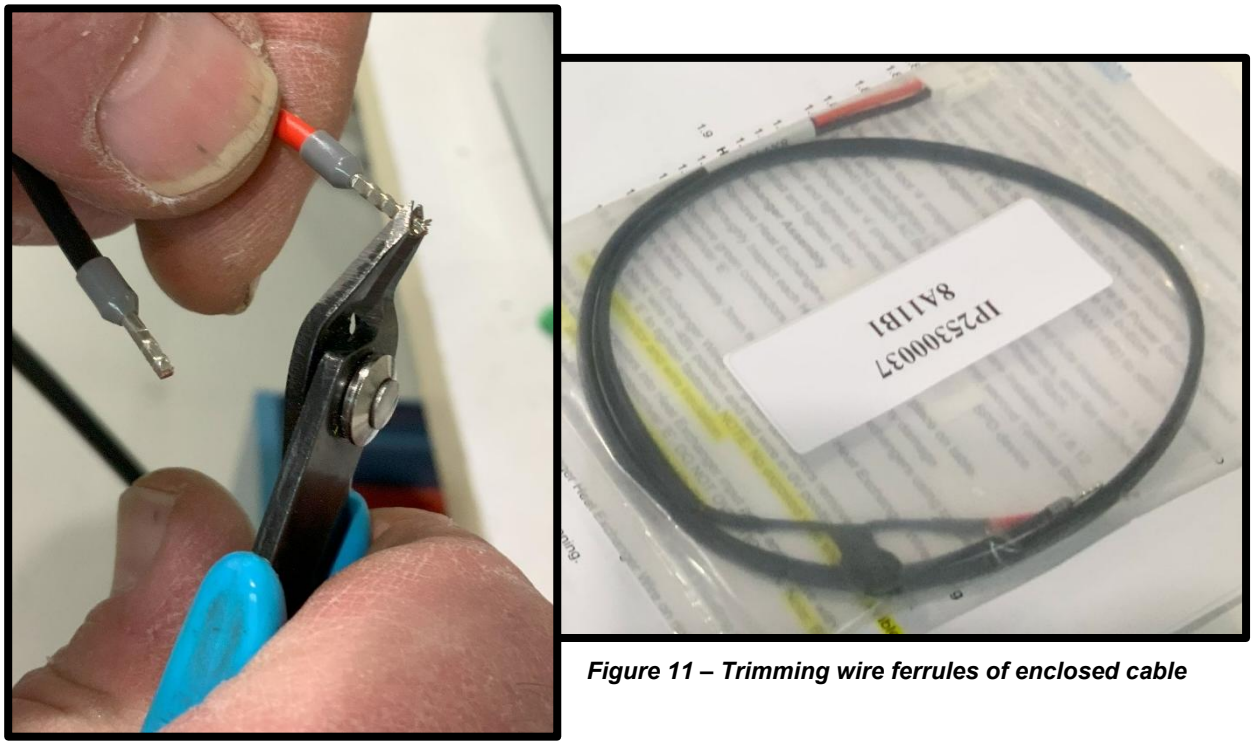


Figure 11 – Trimming wire ferrules of enclosed cable

d. Place black wire in -48V position and red wire in 0V position. Tighten into place with precision flathead driver.

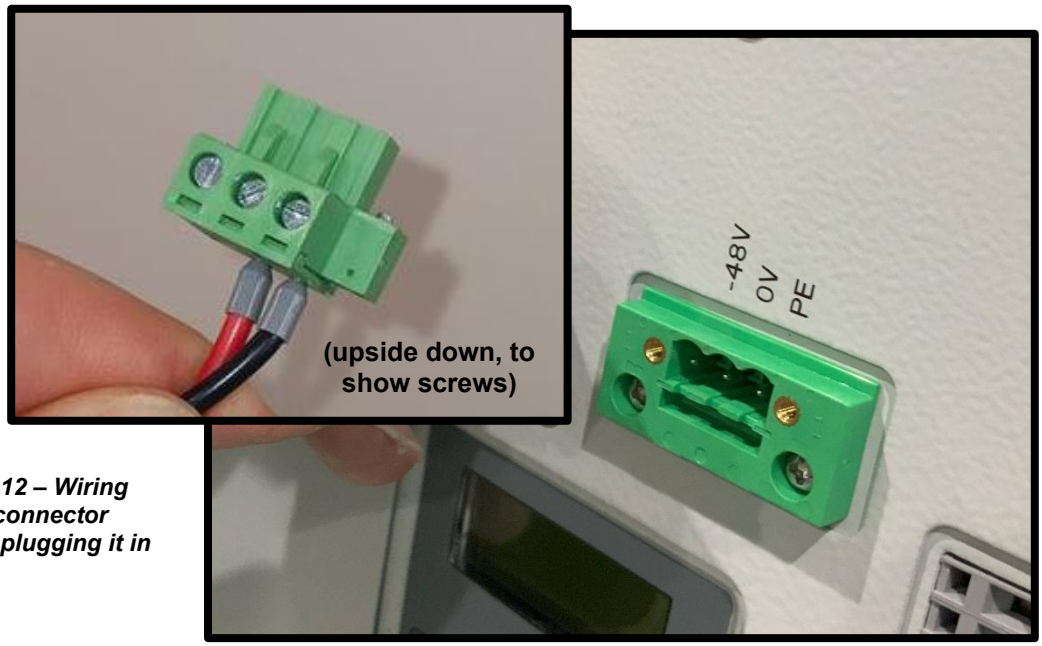


Figure 12 – Wiring green connector before plugging it in to HX

e. Plug green connector into Heat Exchanger input port and secure with captive screws using precision driver. DO NOT OVERTIGHTEN.

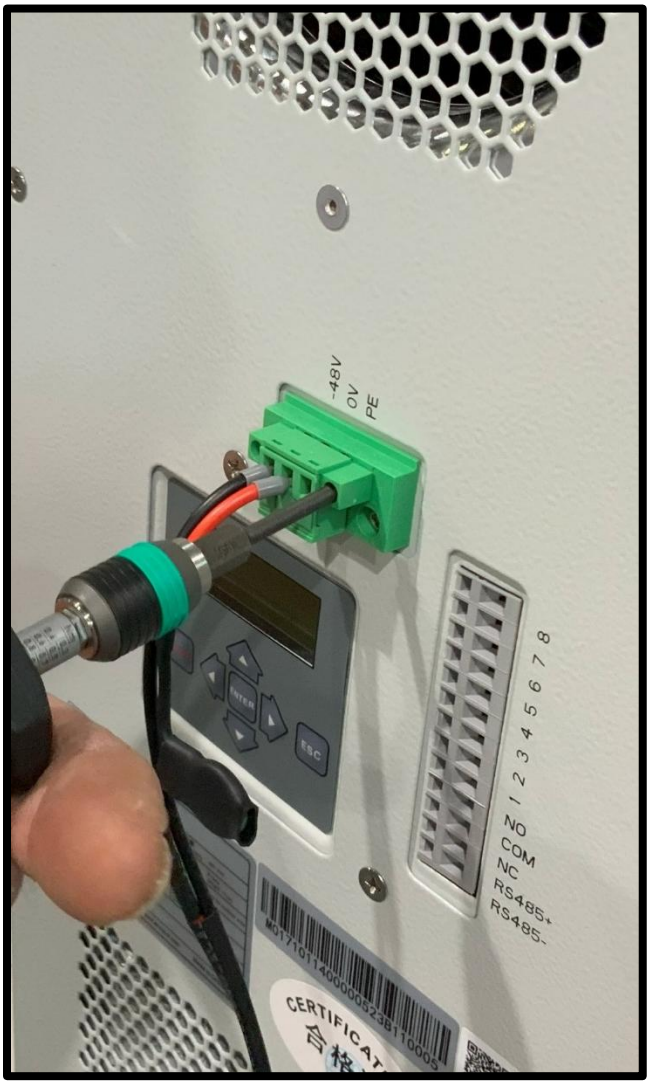


Figure 13 – Plugging in and securing green connector to HX

f. Place Heat Exchanger with longer wires on right side of the cabinet, as you're facing it. (This is because all wires terminate on the left side.) Route wires through the opening to the bottom of the cabinet. Bring HX flush into place and start a top corner screw to keep it from falling. Start each screw by hand, to ensure all are aligned and prevent cross-threading.

g. Mount HX cover onto two top pins of the charger's side, as shown in Figure 14.

h. Fasten with 2 screws that were removed from the bottom.

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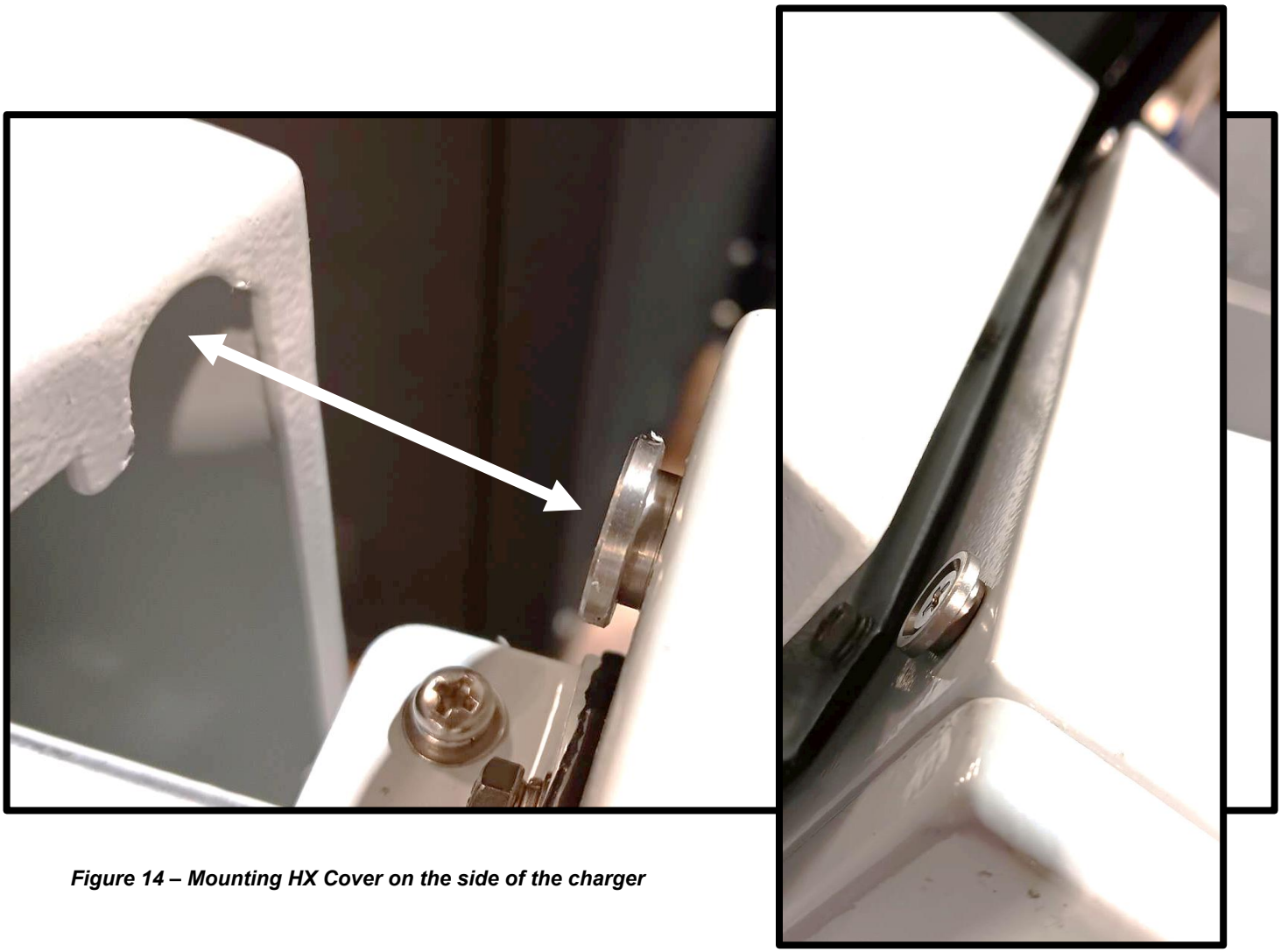

Figure 14 – Mounting HX Cover on the side of the charger

6. Install New Heat Exchanger (HX) and wires.

a. Utilize lifting device to move and hold the unit in place on either the left side or right side of charger.
b. Secure the new left-side or right-side HX to the charger using an M8 socket to install the 20 original fasteners per heat exchanger (HX). This will also require an extension on your drill (Figure 8).

7. Turn ON EV Quick Charger's AC Main Switch.

a. Inside the still-opened lower-front panel of the quick charger, turn chargers AC main switch inside the 30 kW or 60 kW charger (Figure G1) to the ON position.

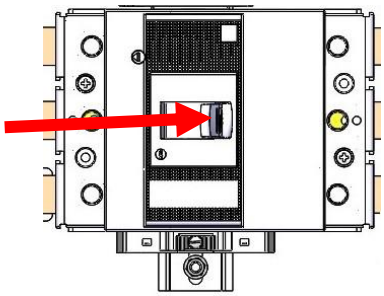

Figure 15: 30 kW or 60 kW charger's AC Main Switch inside charger in ON position

b. Reinstall lower-front panel and secure with the original screws using a T25 Torx driver and torque screws to 142±10 in-lbs (16±5 N-m).

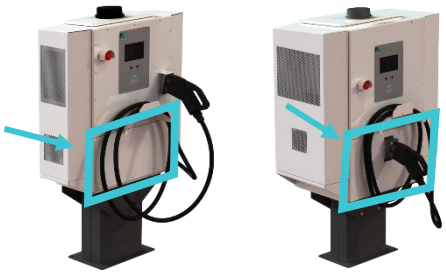

Figure 16: EV quick chargers' lower- front panel (30kW and 60 kW chargers) reconnected